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SOME NEW SPECIES AND VARIETIES IN THE
GENUS HAWORTHIA. V.

(With Plates I and II.)

By G. G. SMITH.

Haworthia Schuldtiana var. **major** G. G. Smith. (Liliaceae-Aloineae.)
Sect. Retusae.

Rosetta acaulescens, diam. $8\frac{1}{2}$ cm.

Folia circiter 30, ascendunt, longa 39 mm., lata 12—13 mm.; *pars retusa* longa 18 mm., lata 10 mm., convexa, turgida, multis tuberculis prominentibus concoloribus albidis denticulatis ornata, pellucide viridis, lineisque 3(—7) albido-viridibus percurta, lineis 1—3 apicem prope attingentibus; *subtus* apicem versus tuberculis orbiculatis prominentibus albidis ornata.

Pedunculus simplex, diam. $2\frac{1}{4}$ mm., longus una cum racemo 30 cm., *pedicelli* longi $2\frac{1}{2}$ mm.; *perianthium* opacè ravo-albidum, longum 19 mm.; *ovarium* longum $3\frac{3}{4}$ mm., diam. $1\frac{1}{2}$ mm., viride; *stylus* longus 1 mm., albido-viridis, flexus, capitatus.

Rosette acaulescent, up to $8\frac{1}{2}$ cm. across.

Leaves up to 34, ascending, recurved, firm, 39 mm. long, 12—14 mm. broad below base of end-area, 9 mm. broad at base of leaf, $10\frac{1}{2}$ mm. thick at base of end-area, obovate, acute, end-awn 2—4 mm. long, persistent;

KEY TO THE DRAWINGS.

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|----------------------------|----------------------------------|
| F = Leaf face. | B = Leaf back. |
| LS = Longitudinal section. | SM = Section near middle. |
| SB = Section near base. | ST = Section near tip. |
| INF = Inflorescence. | Del. M. C. L. = Drawn by Miss M. |
| O & S = Ovary and Stamens. | Courtenay-Latimer. |
| C = Capsule. | |

face below end-area convex, smooth below and with pellucid whitish mostly toothed spots near end-area, dark green to brownish-green, dull; end-area 18 mm. long, 12–14 mm. broad, convex, turgid, with many raised concolorous and whitish tubercles which are beset with white teeth, dark greenish pellucid, dull, with 3(–7) greenish-white $\pm$ converging

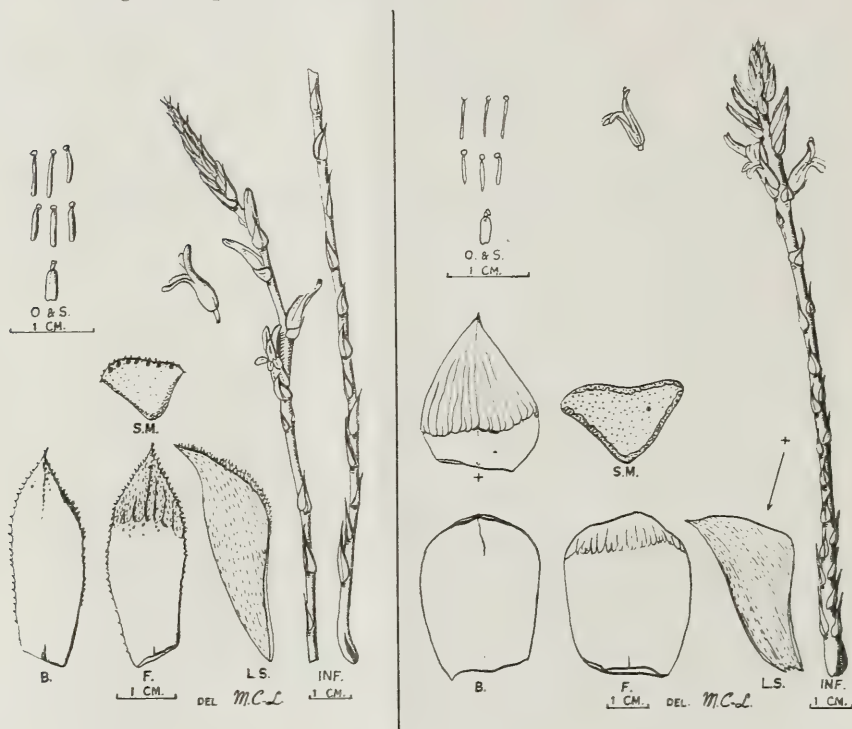


FIG. 1.

H. schultiana var. *major*.*H. retusa* var. *multilineata*.

lines of which 1–3 nearly reach the tip; back convex, smooth below, beset with round raised whitish mostly toothed tubercles near tip, light green below, very dark green to dark brownish-green above, dull; keel 1–2, in the upper $\frac{3}{4}$, $\pm$ acute near tip, with $\frac{3}{4}$ mm. long whitish subulate teeth about $1\frac{1}{2}$ mm. apart; margins $\pm$ acute below, with 1 mm. long white subulate teeth about 1 mm. apart, becoming very short towards base of leaf.

Peduncle simple, terete, $2\frac{1}{4}$ mm. diam., 30 cm. long including the

raceme, greyish-brown below; *raceme* $8\frac{1}{2}$ cm. long, about 20 spirally arranged flowers and buds, 1 open at a time; *pedicels* $2\frac{1}{2}$ mm. long, $1-1\frac{1}{4}$ mm. elliptic, dark greyish-green; *sterile bracts* 16, very large, $11\frac{1}{2}$ mm. long, the lowest one 2 cm. from base of peduncle; *fertile bracts* $10\frac{1}{2}$ mm. long, deltoid acute-acuminate, white with a fine dark brown nerve; *perianth* dull greyish-white, greyish-brown lined, 19 mm. long, the cylindrical-triangular sub-globose base 5 mm. diam., constricted to $2\frac{1}{2}$ mm. above, ascending, curved, not stipitate; *upper segments* obtuse, the outer ones replicate towards the tip, long recurved, $\pm$ spreading, face colour white with a broad greenish-brown nerve, the inner segment channelled, hardly recurved, much shorter, face colour white at tip, green below, with a medium-fine dark greenish-brown nerve; *lower segments* obtuse, channelled, recurved about 75 degrees, the outer ones spreading, face colour white at tip, green below, the inner segment longer, face colour white with a medium fine greenish-brown nerve; *stamens* $5\frac{1}{2}$ and 6 mm. long; *ovary* $3\frac{3}{4}$ mm. long, $1\frac{1}{2}$ mm. diam., green; *style* 1 mm. long, greenish-white, bent, capitate.

Habitat: Cape Province; Riversdale Dist. (Type *G. G. Smith*, 5370, (*Dekenah* 9) in East London Museum Herb.).

Distribution: not further known.

This variety is described from material collected by Mr. J. Dekenah on the Karroo side of Garcia Pass, and sent to the Author in Oct., 1943. The plants grow tightly packed among rocks and in rock crevices on a northern aspect. Compared with *H. Schuldtiana* v.P. the plant is larger, much more heavily toothed and tubercled, and has a long end-awn.

Haworthia retusa* var. *multilineata G. G. Smith. (Liliaceae-Aloineae.)
Sect. Retusae.

Rosetta acaulescens lata usque ad 8 cm.

Folia circiter 15, longa 49 mm., lata 29 mm.; *pars retusa* longa 26 mm., lata 29 mm., deltoidea, acuta, lineis 16—22 longis brevibusque pallidissime viridibus percursa, apice seta longa 5 mm.; *subtus* concava, laevia; *carina* non denticulata; *marginis* parte inferiore minutissime denticulati.

Pedunculus simplex, diam. $2\frac{3}{4}$ mm., longus una cum racemo 16 cm., basi ravo-fuscus; *pedicelli* longi $\frac{1}{2}$ mm., virides; *perianthium* opace album, longum $15\frac{1}{2}$ mm.; *ovarium* longum $3\frac{1}{4}$ mm., diam. $1\frac{1}{8}$ mm., viride; *stylus* longus $\frac{7}{8}$ mm., opace albus, capitatus.

Rosette acaulescent, up to 8 cm. tall, not or slowly proliferous from the base.

Leaves 12—15, recurved, firm, 49 mm. long, 29 mm. broad and 17 mm. thick at the base of end area, end-awn about 5 mm. long, persistent; *face below end-area* flat at base, concave above, smooth, with fine longitudinal flecks, light greenish-brown $\pm$ mottled, dull; *end-area* 26 mm. long, 29 mm. broad, deltoid, acute, recurved at an angle of about 85 degrees, concave, turgid, beset with one or two raised concolorous tubercles, greenish-pellucid, the tip brownish-pellucid, $\pm$ shining, with about 16—22 long and short $\pm$ parallel very light green lines, the middle one reaching the tip, the others progressively shorter; *back* convex, smooth, with many longitudinal flecks, light green below, light reddish-brown then dark greenish-brown above to blackish brown at tip, dull, with about 8 broad lines alternating with fine ones; *keel* 1, acute near tip, naked; *margins* acute below, $\pm$ acute along the end-area, with very minute teeth in the lower half of leaf.

Peduncle simple, terete, $2\frac{3}{4}$ mm. diam., 16 cm. long including the raceme, greyish-brown towards the base of peduncle; *raceme* 5 cm. long, about 27 spirally arranged flowers and buds, 2 open simultaneously; *pedicels* $\frac{1}{2}$ mm. long (almost sessile), green; *sterile bracts* about 33, 12 mm. long, the lowest $\frac{3}{4}$ cm. from base of peduncle; *fertile bracts* 8 mm. long, deltoid, acuminate-subulate, white with a fine brown nerve; *perianth* dull white, $15\frac{1}{2}$ mm. long, the cylindrical-triangular base 4 mm. across, constricted to 3 mm. above, ascending, not or hardly curved; *upper segments* narrow obtuse, recurved about 80 degrees, channelled, face colour of the two outer segments dull white with a fine greenish-brown nerve, $\pm$ spreading, face colour of the inner one dull white at tip, greenish below, with a broad dull green nerve; *lower segments* narrow obtuse, channelled, recurved about 90 degrees, face colour of the two outer segments white at tip, green below with a broad dark green nerve, spreading, face colour of the inner one dull white with a fine green nerve; *stamens* 5 and 6 mm. long; *ovary* $3\frac{1}{4}$ mm. long, $1\frac{1}{8}$ mm. diam., green; *style* $\frac{7}{8}$ mm. long, dull white, bent, capitate.

Habitat : Cape Province; Riversdale Dist. (Type, *G. G. Smith* 5383, (*Dekenah* 83) in the East London Museum Herb.).

Distribution : not further known.

This attractive variety was collected by Mr. J. Dekenah in Dec., 1942, 2 miles north of Riversdale growing on a very dry stony hill facing east, in the open and under small bush. Compared with the species this plant is larger, has longer, broader and darker green leaves which are more retused, there are many more face lines on the end-area, and the margins and keel are entire except for very minute teeth on the margins on the lower half of the leaf.

Haworthia retusa* var. *solitaria G. G. Smith. (Liliaceae-Aloineae.)

Sect. Retusae.

Rosetta diam: 8 cm., a basi non (vel aegre) proliferans.

Folia 15 circiter, longa 40 mm., lata 21 mm., seta extrema persistente longa $4\frac{1}{2}$ mm. ornata; *pars retusa* longa 21 mm., convexa, opace pellucide viridis, aspera, tuberculis parvis concoloribus lineisque 9—15 supra ornata; *subtus* convexa, laevia, claro-viridia, apice obscure caeruleo-viridia; *marginibus carinaeque* plurimum denticulati.

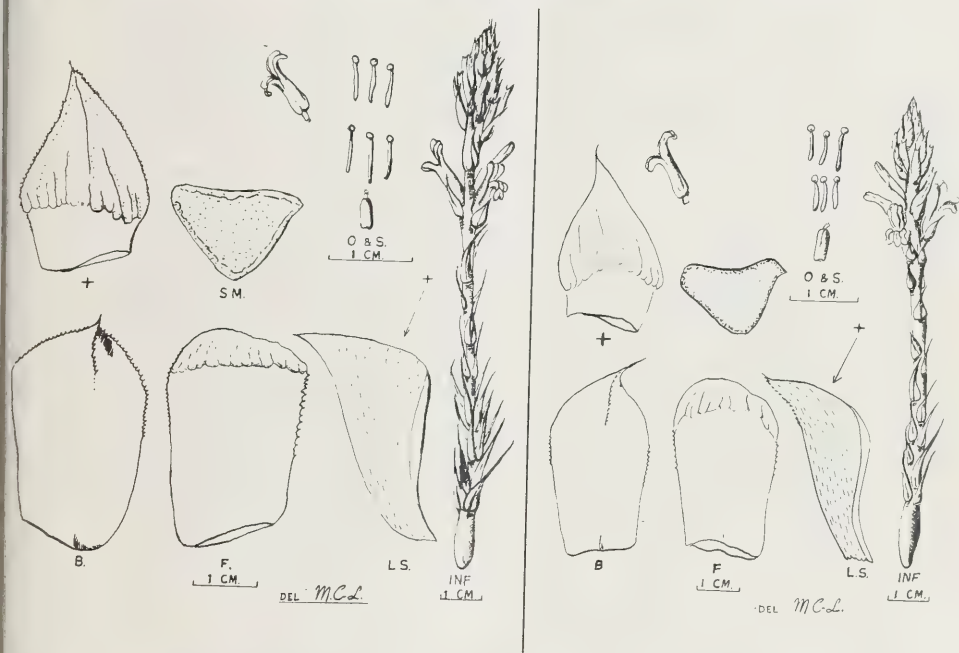


FIG. 2.

H. retusa var. *solitaria*.

H. retusa var. *densiflora*.

Pedunculus simplex, diam. 4 mm., longus una cum racemo crebre floreato 14 cm.; *pedicelli* longi 2 mm., diam. $1\frac{1}{2}$ mm.; *bracteae* steriles 32 circiter; *perianthium* albido-viride, longum 18 mm.; *stamina* longa $5\frac{1}{2}$ and $6\frac{1}{2}$ mm.; *ovarium* longum 4 mm., diam. 2 mm., viride; *stylus* longus 1 mm., capitatus.

Rosette acaulescent, 8 cm. diam., not (or slowly) proliferous from the base.

Leaves about 15, the young erect, the old ascending, recurved, firm, 40 mm. long, 21 mm. broad and $14\frac{1}{2}$ mm. thick at the base of end-area, with a distinct $4\frac{1}{2}$ mm. long whitish naked persistent end-awn; *face below end-area* $\pm$ flat below, concave above, smooth, with very pale papillae, light green, not shining; *end-area* 21 mm. long, 22 mm. broad, convex, turgid, deltoid acute ($-$ acuminate), rough with small concolorous tubercles, dark pellucid green, $\pm$ shining, retused at an angle of about 90 degrees, with $9-15 \pm$ parallel lines, the middle one reaching or nearly reaching the tip, the others progressively shorter; *back* convex, smooth, light green, dark bluish-green at tip, dull; *keel* 1, in the upper $\frac{1}{3}$, acute near tip, with many $\frac{3}{4}$ mm. long teeth which are green below and pellucid near tip, $\frac{3}{4}$ mm. apart; *margins* acute below, $\pm$ rounded above, dark green above, light green below, the reflexed teeth green below and pellucid near tip.

Peduncle simple, terete, 4 mm. diam., 14 cm. long including the aggregate cylindric-conic raceme, brown towards the lower end; *raceme* up to $5\frac{1}{2}$ cm. long, about 35 spirally arranged flowers and buds, 2 open simultaneously; *pedicels* 2 mm. long, $1\frac{1}{2}$ mm. diam., dark green; *sterile bracts* about 32, 15 mm. long, the lowest 1 cm. from base of peduncle; *fertile bracts* 12 mm. long, deltoid, long acuminate, white with a fine dark brown nerve; *perianth* greenish-white, 18 mm. long, the cylindrical-triangular base 5 mm. across, constricted to 3 mm. above, ascending, curved; *upper segments* channelled, recurved at an angle of 90 degrees, face colour of the inner segment pinkish-green with a broad green nerve, broad, short, face colour of the 2 outer pinkish-white with a broad dark green nerve, narrower, acute, longer and $\pm$ spreading; *lower segments* acuminate, recurved about 90 degrees, face colour of the inner segment pinkish-white with a fine green nerve, channelled, broad, face colour of the 2 outer white with a broad green nerve, narrower, replicate, spreading; *stamens* $5\frac{1}{2}$ and $6\frac{1}{2}$ mm. long; *ovary* 4 mm. long, 2 mm. diam., green; *style* 1 mm. long, bent, capitate.

Habitat: Cape Province; Riversdale District. (Type *G. G. Smith* 5373, (*Dekenah* 5) in the East London Museum Herbarium).

Distribution: not further known.

This variety is described from material sent to the author by Mr. J. Dekenah of Riversdale, in Oct., 1942. It occurs about 6 miles north of Riversdale on the Corrente River, growing amongst rocks and practically covered with turf. The plants grow flat, with the retused surface level with the ground, and although found in dense patches, they are all single. Mr. Dekenah writes, "I have found no plants with suckers." Compared with the species, this variety has a long persistent end-awn, the end-area is rough with small concolorous tubercles, has more face lines, the margins

and keel have many small teeth and the peduncle is much thicker and with a short dense raceme.

Haworthia retusa* var. *densiflora G. G. Smith. (Liliaceae-Aloineae.)
Sect. Retusae.

Rosetta acaulescens, lata usque ad 9 cm.

Folia circiter 16, longa 45 mm., lata 23 mm.; *pars retusa* longa 24 mm., lata 23½ mm., tuberculis compluribus parvis prominentibus concoloribus ornata, lineisque circiter 11 longis brevibusque claro-viridibus percursa; *subtus* laevia, basim versus claro-viridia, apicem versus pulliora, opaca; *seta extrema* longa 6 mm., nuda, persistens; *carina marginesque* denticulati.

Pedunculus diam. 3 mm., longus una cum racemo 12½ cm., basi claro-fuscus; *pedicelli* longi 1 mm., obscure virides; *perianthium* album, longum 17 mm.; *ovarium* longum 4 mm., diam. 1¼ mm., viride; *stylus* longus ¾ mm., albus, capitatus.

Rosette acaulescent, up to 9 cm. across.

Leaves about 16, the young erect, the old spreading, recurved, firm, 45 mm. long, 23 mm. broad and 14 mm. thick at base of end-area; *face below end-area* ± flat at base, concave above, ± smooth or with a few small raised concolorous tubercles below base of end-area on some leaves, light green, dull; *end-area* 24 mm. long, 23 mm. wide, convex, ± turgid, with a number of small raised concolorous tubercles and about 11 long and short light green ± converging lines, the middle one nearly reaching the tip, the others progressively shorter, deltoid, acuminate, light pellucid green, shining, the older leaves retused at an angle of about 90 degrees; *back* convex, smooth, light green below, darker green above, dull; *end-awn* 6 mm. long, naked, persistent, reddish-brown at base, light brown at middle to dull white at tip; *keel* central, 1 in the upper ⅓, ± acute, with many very fine greenish-pellucid deltoid teeth in the upper ½; *margins* ± acute, with many larger greenish-pellucid deltoid teeth in the lower half, entire above or with very small teeth.

Peduncle simple, terete, 3 mm. diam., 12½ cm. long including the aggregate cylindric-conic raceme, light brown towards the lower end; *raceme* 4½ cm. long, about 30 spirally arranged flowers and buds, 2 open simultaneously; *pedicels* 1 mm. long, 1—1½ mm. elliptic, dark green; *sterile bracts* about 29, 18 mm. long, the lowest 1 cm. from base of peduncle; *fertile bracts* 9 mm. long, deltoid, subulate, white with a fine reddish-brown nerve; *perianth* white, 17 mm. long, the cylindrical-triangular base 5 mm. across, constricted to 3½ mm. above, ascending, straight, not stipitate; *upper segments* recurved about 90 degrees, channelled, face colour of the inner one white with a broad green nerve,

narrow obtuse, face colour of the 2 outer white with a fine greenish-brown nerve, $\pm$ acute, $\pm$ spreading; *lower segments* more recurved, face colour of the inner one white with a fine greenish-brown nerve, channelled, narrow obtuse, face colour of the two outer ones white with a broad green nerve, deeply channelled to replicate, acute, spreading; *stamens* 5 and 6 mm. long; *ovary* 4 mm. long, $1\frac{3}{4}$ mm. diam., green; *style* $\frac{3}{4}$ mm. long, white, bent, capitate.

Habitat: Cape Province; Riversdale Dist. (Type *G. G. Smith*, 5056 (*Venter* 106) in the East London Museum Herbarium).

Distribution: This variety was collected by Lt.-Col. H. Venter in the Riversdale Dist., and sent to the author in May, 1941. It is nearest to *H. retusa* var. *solitaria* G. G. Smith, but is a larger and taller growing plant, the leaves are somewhat less retused, and the end-awn is longer.

Haworthia mundula G. G. Smith. (Liliaceae-Aloineae.) Sect. Retusae
Rosetta acaulescens, a basi proliferans.

Folia longa 38 mm., lata 13 mm.; *pars retusa* longa 17 mm., laevis vel paucis tuberculis parvis prominentibus concoloribus ornata, lineisque longis 1—3, brevibus 5 pallide viridibus percursa; *marginibus* dentibus longis $\frac{1}{2}$ mm., $\pm$ prominentibus albido-viridibus, retrorsis ornati.

Pedunculus simplex, diam. 1 mm., longus una cum racemo 16 cm.; *pedicelli* longi 2 mm., fusco-virides; *bractae steriles* 12, longae 6 mm.; *bractae fertiles* longae 4 mm.; *perianthium* opace album, longum 17 mm.; *ovarium* longum 3 mm., diam. $1\frac{1}{3}$ mm., viride; *stylus* longus $\frac{1}{2}$ mm., opace albus, inflexus, $\pm$ capitatus.

Rosette acaulescent, 60 mm. diam., freely proliferous from the base.

Leaves about 16, the young erect, the old spreading, recurved, $\pm$ incurved near tip, firm, 38 mm. long, 13 mm. broad and 10 mm. thick at base of end-area, 14 mm. broad below, oblong, acute; *end-awn* 3 mm. long, naked, mostly deciduous, brownish-white; *face below end-area* flat towards base, $\pm$ convex above, smooth, pale green below, dark green above, dull; *end-area* acute, 17 mm. long, 13 mm. broad, convex, smooth or with a few small raised concolorous tubercles in 1—2 longitudinal rows, retused at an angle of about 70 degrees, greenish-pellucid, $\pm$ shining, with 1—3 long and about 5 short pale green lines, the middle one nearly reaching the tip, the others becoming shorter; *back* convex, $\pm$ triangular near tip, smooth, beset with very minute whitish longitudinal flecks in the lower half, light green below, dark green above, dull, with about 12 longitudinal lines; *keel* 1, in the upper $\frac{1}{3}$, acute, with $\frac{1}{2}$ mm. long, acute, pellucid-green teeth; *margins* acute, whitish pellucid below, with $\pm$ prominent greenish-white $\frac{1}{2}$ mm. long retrorse acute-acuminate teeth which become smaller near the base of leaf.

Peduncle simple, terete, 1 mm. diam., 16 cm. long including the raceme, greenish-brown below; *raceme* 6 cm. long, about 8 spirally arranged flowers and buds, 1—2 open simultaneously; *pedicels* 2 mm. long, $\frac{3}{4}$ by 1 mm. elliptic, greenish-brown; *sterile bracts* 12, 6 mm. long, the lowest about 1 cm. from base of peduncle; *fertile bracts* 4 mm. long, ovate, acuminate, white with a medium-fine dark brown nerve; *perianth* dull white, 17 mm. long, the cylindrical-triangular base 3 mm. across, constricted to $2\frac{1}{4}$ mm. above, erect $\pm$ ascending, curved; *upper segments* obtuse, the outer ones $\pm$ replicate, recurved, spreading, face colour dull

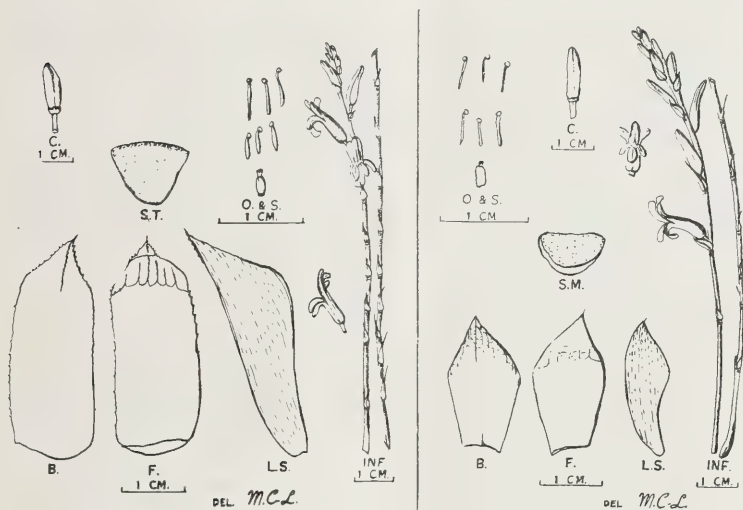


FIG. 3.

H. mundula.

H. turgida var. *pallidifolia*.

pinkish-white with a medium-fine dark green nerve, the inner segment channelled, recurved, face colour dull pinkish-white towards tip, green below with a fine dark green nerve; *lower segments* obtuse, the inner one very recurved, channelled, face colour dull white with a fine dark green nerve, the outer segments replicate, $\pm$ revolute, spreading, face colour dull pinkish-white below, green above, with a fine dark green nerve; *stamens* 5 and 6 mm. long; *ovary* 3 mm. long, $1\frac{1}{3}$ mm. diam., green; *style* $\frac{1}{2}$ mm. long, dull white, bent, $\pm$ capitate.

Habitat: Cape Province: Bredasdorp Dist. (Type *G. G. Smith*, 5479 (Otzen 10) in East London Museum Herbarium.)

Distribution: not further known.

This neat little plant is described from material collected by Mr. M. Otzen in Dec., 1942, some miles west of Bredasdorp, from which district it has been recorded by several collectors. It is nearest to *H. mirabilis* Haw. in its clear pellucid end-area, but in the new species the end-area is shorter and less pointed, there are no tubercles on back of leaves and the end-awn is shorter.

Haworthia turgida var. **pallidifolia** G. G. Smith. (Liliaceae-Aloineae.)
Sect. *Retusae*.

Folia 25 circiter, longa usque ad 27 mm., lata 12 mm., obovata, deltoidea, acuta; *parte retusa* longa 10—11 mm., lata 12 mm., convexa, laevia, lineis longis 3 brevibusque 3—4 percursa; *subtus* convexa, laevia, claro-viridia; *carina marginesque* integri.

Pedunculus diam. vix 1 mm., longus una cum racemo 20 cm.; *pedicelli* longi $1\frac{3}{4}$ mm., diam. 1 mm., obscure virides; *bractee steriles* 8—9, longae 4 mm.; *bractee fertiles* longae $5\frac{1}{2}$ mm.; *perianthium* album, longum 16 mm., basi cylindrico-triquetra diam. $3\frac{1}{2}$ mm.; *ovarium* longum $2\frac{1}{2}$ mm., diam. $1\frac{1}{4}$ mm., viride; *stylus* longus $\frac{1}{2}$ mm.

Rosette acaulescent, 4 cm. diam., proliferous from the base and forming clusters.

Leaves about 25, the young erect, the old erect-spreading, $\pm$ firm, up to 27 mm. long, 12 mm. broad, 7 mm. thick at base of end-area, obovate, deltoid-acute; *end-awn* $1\frac{1}{2}$ mm. long, naked, persistent, pale green; *face below end-area* $\pm$ convex, smooth, with minute longitudinally oblong flecks, light green, dull; *end-area* 10—11 mm. long, 12 mm. broad, convex, smooth, light pellucid green, dull, with minute longitudinally oblong lighter to silvery flecks and 3 long lines, one of which reaches the tip, and 3—4 short lines extending only slightly into the pellucid part, the lines distinctly reticulate; *back* convex, smooth, light green, dull, with many oblong pellucid spots and longitudinally oblong lighter flecks, and about 12 reticulate lines; *keel* obliquely arranged in the upper $\frac{1}{4}$, entire; *margins* rounded above, $\pm$ acute below, entire.

Peduncle simple, terete, barely 1 mm. diam., 20 cm. long including the few flowered raceme, light brown to light greenish-brown below; *raceme* $5\frac{1}{2}$ cm. long, about 12—14 spirally arranged flowers and buds, 1—2 open simultaneously; *pedicels* $1\frac{3}{4}$ mm. long, 1 mm. diam., dark green; *sterile bracts* 8—9, 4 mm. long, the lowest 2 cm. from base of peduncle; *fertile bracts* $5\frac{1}{2}$ mm. long, deltoid, acuminate, white, with a medium-fine brown nerve; *perianth* white, 16 mm. long, the cylindrical-triangular base $3\frac{1}{2}$ mm. across, tapering to $2\frac{3}{4}$ mm. above, not stipitate, oblong-ovate, ascending-spreading, curved; *upper segments* obtuse, channelled, face

colour white with a fine green nerve, the 2 outer segments recurved, spreading, the inner one less recurved, shorter; *lower segments* obtuse, channelled, face colour white near tip, light green below, with a broad darker green nerve, the outer ones recurved about 90 degrees, the inner one very recurved, longer; *stamens* $4\frac{1}{2}$ and 4 mm. long; *ovary* $2\frac{1}{2}$ mm. long, $1\frac{1}{4}$ mm. diam., green; *style* $\frac{1}{2}$ mm. long, white, bent, capitate; *capsule* 12 mm. long, 3— $3\frac{1}{2}$ mm. diam., oblong.

Habitat: Cape Province: Riversdale Dist. (Type *G. G. Smith* 5714, (*Dekenah* 146), in East London Museum Herbarium.)

Distribution: not further known.

This distinctive variety is described from material collected by Mr. J. Dekenah of Riversdale, on the Valsch River, and sent to the author in May, 1944. It is easily grown and soon forms neat clusters. Compared with the species the leaves are longer, broader, thicker and more acute, and have a $1\frac{1}{2}$ mm. long end-awn. The flecks on the end-area are more numerous, the lines on the back are more conspicuous, those on the face are fewer and less defined and are not as reticulate. In colour, this variety is a lighter green than any other plant so far recorded in the *Retusae* Section.

Haworthia asperiuscula* var. *patagiata G. G. Smith. (Liliaceae-Aloineae.) Sect. *Trifariae*.

Caulis foliatus erectus, longus usque ad 15 cm., latus una cum foliis 25 mm., a basi proliferans.

Folia ordinate trifaria, imbricata, divergentia, longa 20 mm., lata 13—15 mm.; *supra* concava, parte superiore minute scabrosa, claudio-fulvido-viridia, apicem versus obscure viridia; *subtus* convexa, partibus duabus superioribus minute scabrosa, obscure viridia, opaca.

Pedunculus simplex, diam. 1 mm., longus una cum racemo 28 cm., basim versus fuscus; *pedicelli* longi 7 mm., viride-fusci; *bractae fertiles* longae $3\frac{1}{2}$ mm.; *ovarium* longum 3 mm., $1\frac{1}{3}$ mm. diam.; *stylus* longus 2 mm.

Leafy stem erect, up to 15 cm. long, 25—28 mm. across including the leaves, proliferous from the base and forming clusters.

Leaves regularly trifarious, imbricated, spreading, recurved, 20 mm. long, 13—15 mm. broad above the base, $4\frac{1}{3}$ mm. thick at the middle, the sheathing leaf base $6\frac{1}{2}$ — $7\frac{1}{2}$ mm. long on the side opposite to the lamina, ovate-deltoid, $\pm$ abruptly acuminate, cuspidate; *face* concave, triangular-concave towards the tip, minutely scabrous in the upper half with concolorous papillae, often with a longitudinal concolorous raised line alongside the middle groove, pink at base, light yellowish-green becoming dark

green towards the tip, $\pm$ shining below to dull above; *back* rounded, becoming triangular towards the tip, minutely scabrous in the upper $\frac{2}{3}$, sandy, pink at base, dark green above, dull; *keel* prominent, straight and central in the upper $\frac{1}{3}$, below turned sharply to one side in a long curve, green, horny, $\pm$ shining; *margins* acute below, becoming broad and flattened towards the tip of leaf, green, horny, shining.

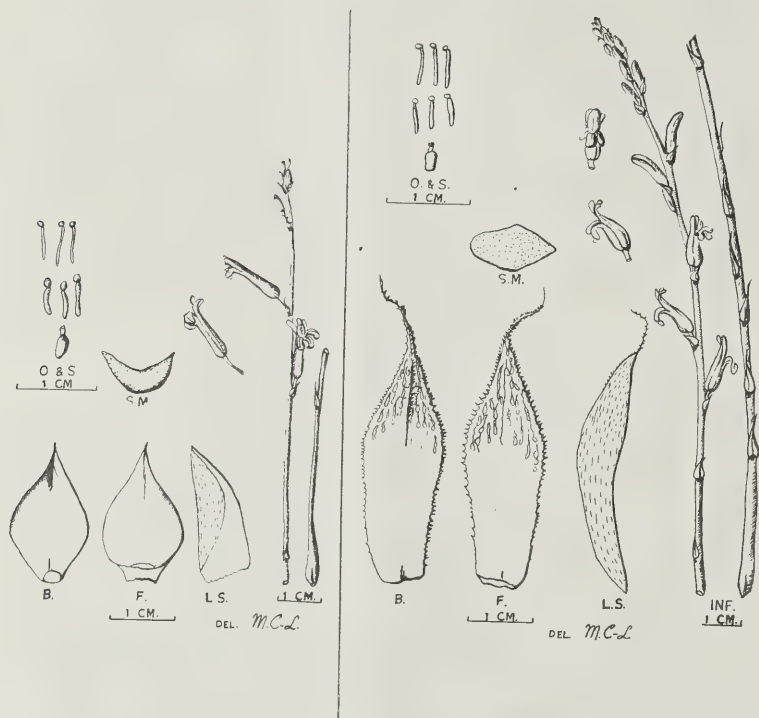


FIG. 4.

H. asperiuscula var. *patagiata*.*H. Nort'eri*.

Peduncle simple, terete, 1 mm. diam., 28 cm. long including the raceme, brown below; *raceme* $12\frac{1}{2}$ cm. long, about 12 spirally arranged flowers and buds, 1 open at a time; *pedicels* 7 mm. long, barely 1 mm. diam., greenish-brown; *sterile bracts* 2, $5\frac{1}{2}$ mm. long, the lower one 5 cm. from base of peduncle; *fertile bracts* $3\frac{1}{2}$ mm. long, deltoid-lanceolate, acuminate, white, with a fine brown nerve; *perianth* white, brown nerved.

17 mm. long, the cylindrical-hexagonal sub-globose base 3 mm. diam., only slightly constricted above, the base tapering to the pedicel, oblong, spreading, $\pm$ curved; *upper segments* obtuse, channelled, the inner one straight, tip incurved, face colour white at tip to green below with a broad greenish-brown nerve, the 2 outer segments short-recurved-revolute, not spreading, face colour white with a broad greenish-brown nerve; *lower segments* obtuse, the inner one channelled, revolute, face colour white with a greenish-brown nerve; the 2 outer replicate, recurved about 90 degrees, spreading, face colour pure white at tip, greenish below, with a broad greenish-brown nerve; *stamens* 6 and $7\frac{1}{2}$ mm. long; *ovary* 3 mm. long, $1\frac{1}{3}$ mm. diam., bright green; *style* 2 mm. long, $\pm$ bent, capitate, yellowish-white.

Habitat: Cape Province; Willowmore Dist. (Type, G. G. Smith, 2176 in East London Museum Herbarium.)

Distribution: not further known.

This variety was collected by the author in Oct., 1937, 15 miles N.E. of Willowmore. Compared with the species, the leaves are more pointed and not as scabrous, the margins are more horny and shining and the pedicels are shorter.

Haworthia Nortieri G. G. Smith. (Liliaceae - Aloineae.) Sect. Laetevirentes.

Rosetta acaulescens, diam. $6\frac{1}{2}$ cm.

Folia 43 circiter, longa 37 mm. lata supra mediam partem 12 mm., obovata, acuto-lanceolata; *seta extrema* longa 13 mm., denticulata; *supra* convexa, notis parte superiore irregulariter dispositis oblongis pellucidis percursa, lineisque 7 subrubido-fuscis vel viridibus, reticulatis anastomosentibusque, basim versus rubido-viridibus, apicem versus subrubido-fuscis instructa; *subtus* convexa notis superiore parte oblongis pellucidis percursa; *margines carinaque* dentibus pellucide albis ornati.

Pedunculus simplex, diam. una cum racemo sublaque floreato $1\frac{1}{2}$ mm.; *pedicelli* longi $2\frac{1}{2}$ mm., diam. 1 mm., fusci; *perianthium* album, longum 15 mm.; *ovarium* longum 3 mm., diam. $1\frac{1}{4}$ mm., claro-viride; *stylus* longus $\frac{3}{4}$ mm.

Rosette acaulescent, $6\frac{1}{2}$ cm. diam., not or very slowly proliferous from the base.

Leaves about 43, the young erect and $\pm$ incurved, the old ascending and incurved, $\pm$ firm, 37 mm. long, 12 mm. broad above the middle, 6 mm. thick, obovate, acute-lanceolate; *end-awn* 13 mm. long, white, persistent, denticulate; *face* convex, $\pm$ swollen above the middle, smooth, irregularly pellucid in the upper $\frac{1}{2}$ in solitary and confluent longitudinally

oblong pellucid markings, this pellucid area about 18 mm. long, with 7 mauvish-brown or green reticulate and anastomosing lines, 2—3 of which reach the tip, reddish-green below, mauvish-brown above, dull; *back* convex, smooth, with solitary and confluent longitudinally oblong pellucid markings in the upper $\frac{1}{2}$, and 11 indistinct darker ($\pm$ reticulate) and anastomosing lines which are reddish near the tip, the leaf light green below, mauvish-brown above, dull; *margins* acute, with $1\frac{1}{4}$ mm. long pellucid-white acuminate teeth at middle of leaf, smaller at tip and becoming very small below; *keels* 2 in the upper $\frac{1}{3}$, the teeth the same colour as those on the margins but smaller.

Peduncle simple, terete, $1\frac{1}{2}$ mm. diam., including the sub-laxly 17-flowered raceme about 27 cm. long, the flowers and buds spirally arranged, light greyish-brown below; *raceme* 10 cm. long, 3 flowers open simultaneously; *pedicels* $2\frac{1}{2}$ mm. long, 1 mm. diam., brown; *sterile bracts* 9, 8 mm. long, the lowest $1\frac{1}{2}$ cm. from base of peduncle; *fertile bracts* 4 mm. long, deltoid, acute, white with a fine reddish-brown nerve; *perianth* white, 15 mm. long, the cylindrical-triangular base 4 mm. across, gradually constricted to $3\frac{1}{2}$ mm. above, not stipitate, ovate, ascending-spreading, $\pm$ curved; *upper perianth segments* obtuse, channelled, recurved, the inner one short, face colour golden-yellow and white tipped, and with a broad greenish-brown nerve, the 2 outer ones more recurved (about 90 degrees), $\pm$ spreading, face colour white with a medium-fine greenish-brown nerve; *lower segments* obtuse, channelled, the inner one recurved-revolute, long, face colour white with a medium-fine greenish-brown nerve, the outer segments more recurved (about 90 degrees), spreading, face colour golden-yellow and white tipped, with a broad greenish-brown nerve; *stamens* 6 and 5 mm. long; *ovary* 3 mm. long, $1\frac{1}{4}$ mm. diam., light green; *style* $\frac{3}{4}$ mm. long, dull white, bent, capitate.

Habitat: Cape Province; Van Rhynsdorp Dist. (Type *G. G. Smith* 1676/a in East London Museum Herbarium.)

Distribution: not further known.

This interesting species was collected by the Author near Doorn River bridge, about 28 miles N.W. of Clanwilliam, in Jan., 1937, the locality having been given by Dr. Nortier, of Clanwilliam, after whom I have much pleasure in naming the plant. The leaf markings and the colour of the flowers are quite distinctive and the plant is thus easily recognised.

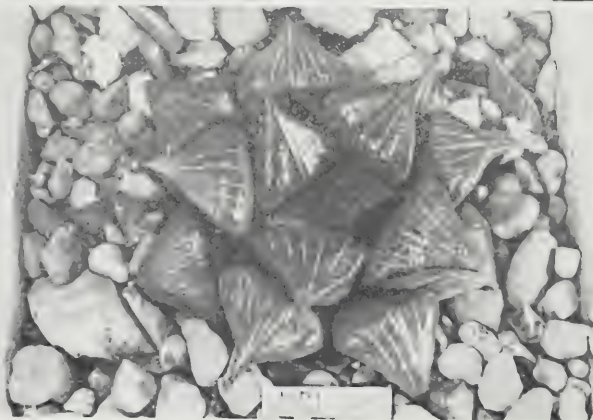


PLATE I.

H. schultzeana var. *major*.
H. retusa var. *solitaria*.

H. retusa var. *multilineata*.
H. retusa var. *densiflora*.

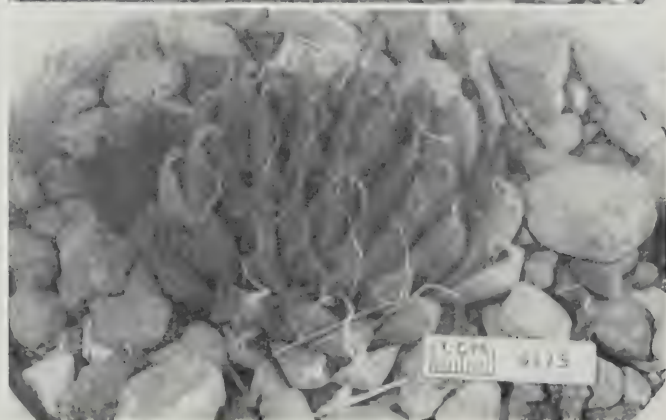
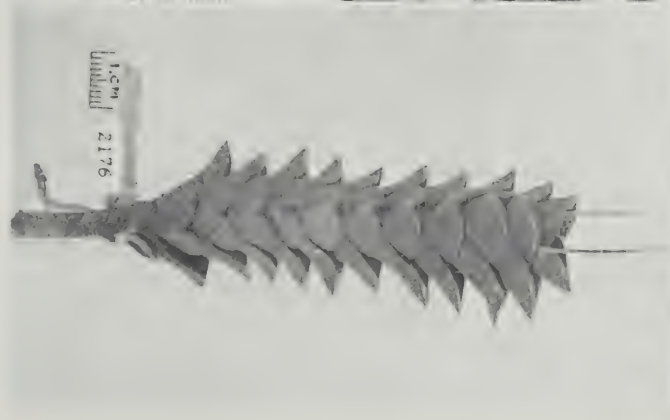
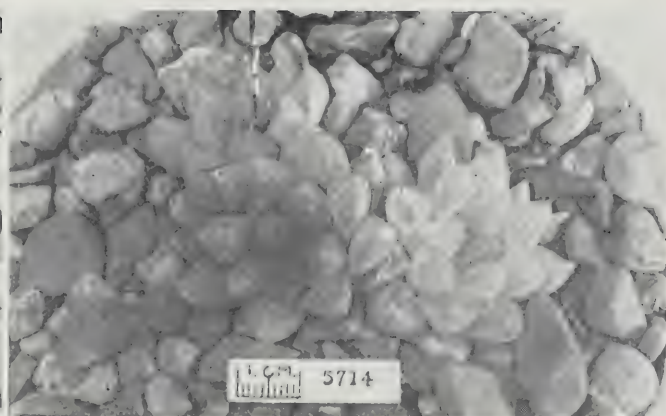
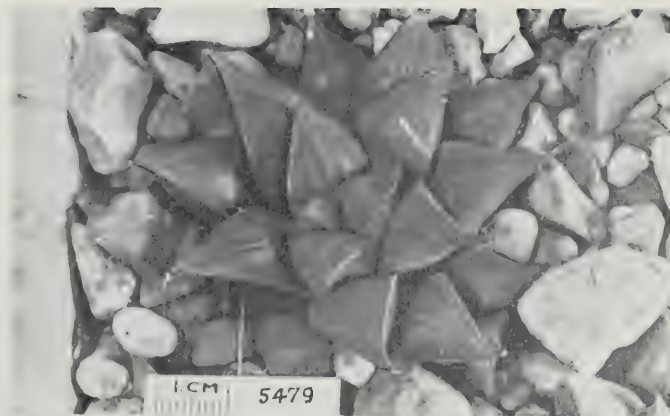


PLATE II.

H. mundula,
H. aspericauda var. *palupata*.

H. turgida var. *pallidifolia*,
H. Nott. var.